

Listing of Claims:

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Claim 1 (previously amended): A flat panel display system for displaying data relating to aircraft system parameters from corresponding aircraft instruments to a flight crew in a cockpit of an aircraft, comprising:

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a flat panel display for visually displaying the aircraft system parameters on simulated instruments found on the flat panel display and for displaying indicia that said data is being received related to the aircraft system parameters from corresponding aircraft instruments;

a first central processor for receiving said data from the aircraft instruments measuring said aircraft system parameters;

a first graphics generator operatively coupled to the first central processor for generating a first set of color data as a function of the data received by the first central processor and for outputting the first set of color data to a location on the flat panel display so that the flat panel display can form the simulated instruments and the indicia;

a second central processor for receiving said data from the aircraft instruments measuring said aircraft system parameters; and

a second graphics generator operatively coupled to the second central processor for generating a second set of color data as a function of the data received by the second central processor and for outputting the second set of color data to said location on the flat panel display in a different color than said first set of color data so that the combination at said location of the first set of color data from the first graphics generator and the second set of color data from the second graphics generator forms at said location on the flat panel display

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the simulated instruments and the indicia such that said indicia is of another color different from the colors of said first and second sets of color data,

wherein when either of the first and second sets of color data is not output to said location on the flat panel display, the indicia on the flat panel display is in a color different from said another color.

Claim 2 (original): The flat panel display system of claim 1, further comprising a video multiplexer circuit connected between the first and second graphics generators and the flat panel display for multiplexing and timing the output of the first and second sets of color data for output to the flat panel display.

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Claim 3 (original): The flat panel display system of claim 1, further comprising a third central processor for receiving data from aircraft instruments related to the aircraft system parameters and for interrogating the aircraft systems with simulated flight data on a statistical basis to build a database of statistical measurements of the aircraft systems for maintenance and diagnostic purposes.

Claim 4 (original): The flat panel display system of claim 3, wherein the third central processor implements Monte Carlo statistics.

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Claim 5 (original): The flat panel display system of claim 3, further comprising an external memory device for storing external flight data that can be recalled by the flight crew and displayed on the flat panel display.

Claim 6 (original): The flat panel display system of claim 5, further comprising an input device in communication with the external memory device for accessing the external data so that the external data can be displayed on the flat panel display.

Claim 7 (original): The flat panel display system of claim 6, wherein the flat panel display further comprises a bezel surrounding a periphery of the flat panel display and wherein the input device is interfaced to the bezel.

Claim 8 (original): The flat panel display system of claim 7, wherein the input device comprises a capacitive touch pad.

Claim 9 (original): The flat panel display system of claim 8, wherein the external memory device comprises a compact disc player.

Claim 10 (original): The flat panel display system of claim 9, wherein the external data comprises an aircraft navigation chart.

Claim 11 (original): A color flat panel display for displaying to a crew in a cockpit in an aircraft simulated aircraft instruments and displaying aircraft system parameters

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related to data from aircraft instruments and indicia for indicating that said data is being received, comprising:

a display screen having a periphery on which the simulated aircraft instruments can be displayed in a first color and said indicia can be displayed in a second color different from said first color and on which a condition of data error can be detected by a flight crew when the aircraft systems that feed the data related to the aircraft system parameters to the display screen for display on the simulated aircraft instruments do not function properly;

a bezel surrounding the periphery of the display screen for holding the display screen in a fixed position; and

an input device mounted to the bezel for accessing an external memory device containing data necessary for flight.

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Claim 12 (original): The color flat panel display of claim 11, wherein the input device is a capacitive touch pad.

Claim 13 (previously amended): A circuit for controlling a flat panel display that displays on simulated aircraft instruments data related to aircraft system parameters gathered from aircraft instruments and indicia that show that the data is being received by the flat panel display, comprising:

a first central processor for receiving said data from the aircraft instruments measuring said aircraft system parameters;

a first graphics generator operatively coupled to the first central processor for

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generating a first set of color data as a function of the data received by the first central processor and for outputting the first set of color data to a location on the flat panel display so that the flat panel display can form the simulated instruments and the indicia;

a second central processor for receiving said data from the aircraft instruments measuring said aircraft system parameters;

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a second graphics generator operatively coupled to the second central processor for generating a second set of color data as a function of the data received by the second central processor and for outputting the second set of color data to said location on the flat panel display in a different color than said first set of color data so that the combination at said location of the first set of color data from the first graphics generator and the second set of color data from the second graphics generator forms at said location on the flat panel display the simulated instruments and the indicia such that said indicia is of another color different from the colors of said first and second sets of color data,

wherein when either of the first and second sets of color data is not output to said location on the flat panel display, the indicia on the flat panel display is in a color different from said another color; and

a third central processor for receiving data from aircraft instruments related to the aircraft systems parameters and for interrogating the aircraft systems with simulated flight data on a statistical basis to build a database of statistical measurements of the aircraft systems for maintenance and diagnostic purposes.

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Claim 14 (original): The circuit of claim 13, further comprising a video multiplexer circuit connected between the first and second graphics generators for multiplexing and timing the output of the first and second sets of color data to the flat panel display.

Claim 15 (original): The circuit of claim 14, wherein the third central processor implements Monte Carlo statistics.

Claim 16 (original): The circuit of claim 15, further comprising an external memory device for storing external flight data that can be recalled by the flight crew and displayed on the flat panel display.

Claim 17 (original): The circuit of claim 16, further comprising an input device in communication with the external memory device for accessing the external data so that the external data can be displayed on the flat panel display.

Claim 18 (original): The circuit of claim 17, wherein the input device comprises a capacitive touch pad.

Claim 19 (previously amended): A color flat panel display for displaying, to a crew in a cockpit in an aircraft, simulated aircraft flight instruments and aircraft system parameters related to data from aircraft instruments and indicia for indicating integrity of display data being received for display by the color flat panel display, comprising:

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a display screen on which at least one of the simulated aircraft instruments and said aircraft system parameters are displayed in a first color and said indicia are normally displayed in a single, predetermined, unchanging second color different from said first color such that any color change from said second color in said indicia normally displayed in said second color as a result of a change in indicia data fed to the display screen visually indicates reduced operating integrity of the display data and thereby visually alerts the crew to a possible problem with the displayed aircraft system parameters.

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Claim 20 (previously added): A color flat panel display in accordance with claim 19, wherein said indicia define a border of at least one of the simulated aircraft instruments displayed on said flat panel display.

Claim 21 (previously added): A color flat panel display in accordance with claim 19, wherein said indicia define a pointer of at least one of the simulated aircraft instruments displayed on said flat panel display.

Claim 22 (new): A color flat panel display system for displaying, to an aircraft flight crew in an aircraft cockpit, aircraft flight data for use by the flight crew in operating the aircraft based on flight data information input to the display system, said system comprising:

a color flat panel display screen for presenting to the flight crew an image representing the flight data, the flight data image being presented on the display screen in a presentation color selectively formed at each of multiple locations on the display screen by

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concurrently illuminating predetermined combinations of a plurality of color pixels at said each location;

a first independent processor for receiving the flight data information supplied to the display system and operable for generating a first output to the display screen for illuminating a first subset of said plural color pixels at said each location;

a second independent processor for receiving the flight data information supplied to the display system and operable for generating a second output to the display screen, concurrent with said first output of the first processor, for illuminating a second subset of said plural color pixels at said each location to thereby present the flight data image on the display screen at said each location in said presentation color formed by concurrent illumination by the first and second processors of a combination of said first and second subsets of the plural color pixels at said each location.

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Claim 23 (new): A method of displaying, to an aircraft flight crew on a color flat panel display screen in an aircraft cockpit, an image of aircraft flight data presented to the flight crew on the display screen in a presentation color selectively formed at each location on the display screen by concurrently illuminating a predetermined combination of a plurality of color pixels at said each location, for use of the presented flight data image by the flight crew in operating the aircraft, said method comprising the steps of:

supplying flight data information to a first independent processor for generating, from the supplied flight data information, the flight data image as a first output for illuminating a first subset of the plural color pixels at said each location;

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supplying the flight data information to a second independent processor for generating, from the supplied flight data information, the flight data image as a second output for illuminating a second subset of the plural color pixels at said each location; and

concurrently supplying the first and second outputs to the display screen so as to concurrently illuminate the first and second subsets of the plural color pixels at said each location of the display screen and thereby present the flight data image on the display screen at said each location in the presentation color formed by the concurrent illumination of the first and second subsets of the plural color pixels at said each location of the color flat panel display screen.

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